

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellants: Frank A. Skraly and Martha Sholl

Serial No.: 09/909,574 Art Unit: 1652

Filed: July 20, 2001 Examiner: Yong D. Pak

For: *PRODUCTION OF POLYHYDROXYALKANOATES FROM POLYOLS*

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF**

Sir:

Responsive to the Notice of Non-Compliant Appeal Brief mailed on September 20, 2007, please consider the following comments. Enclosed is Section (5) of the Appeal Brief entitled "Summary of Claimed Subject Matter". Please substitute the enclosed "Summary of Claimed Subject Matter" with the "Summary of Claimed Subject Matter" filed in the Appeal Brief of August 22, 2007.

It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 50-3129.

**(5) SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 defines a method for producing polyhydroxyalkanoates comprising providing bacteria, plants, and yeast (see at least page 5, lines 18-21), which express enzymes selected from the group consisting of acyl-CoA transferase, acyl-CoA synthetase,  $\beta$ -ketothiolase, acetoacetyl-CoA reductase, and PHA synthase (see at least page 5, lines 1-5), wherein the organisms are genetically engineered to express enzymes (see at least page 3, lines 15-18), which are active in bacteria or plants, selected from the group consisting of diol oxidoreductase and aldehyde dehydrogenase (see at least page 4, lines 2-3, page 5, line 18 to page 6, line 28 and Examples 4 and 6), which can convert diols into hydroxyalkanoate monomers selected from the group consisting of 4-hydroxybutyrate, 2-hydroxybutyrate, 4-hydroxyvalerate, 5-hydroxyvalerate, 6-hydroxyhexanoate, 2-hydroxyethanoate, 2-hydroxypropionate, and 3-hydroxyhexanoate (see at least page 2, line 22 to page 3, line 6 and claims 11 and 21 as originally filed), and culturing the organisms under conditions wherein the hydroxyalkanoate monomers are polymerized by the activity of a PHA synthase enzyme to form polyhydroxyalkanoates having a weight-average molecular weight (Mw) of at least 300,000 Da (see at least claims 1 and 11 as originally filed, page 4, lines 14-16 and the Examples).

Independent claim 10 defines a system for producing polyhydroxyalkanoates comprising organisms selected from the group consisting of bacteria, plants, and yeast (see at least page 5, lines 18-21), which express enzymes selected from the group consisting of acyl-CoA transferase, acyl-CoA synthetase,  $\beta$ -ketothiolase, acetoacetyl-CoA reductase, and PHA synthase (see at least page 5, lines 1-5), wherein the organism is genetically engineered to express enzymes (see at

least page 3, lines 15-18), which are active in bacteria or plants, selected from the group consisting of diol oxidoreductase and aldehyde dehydrogenase (see at least page 4, lines 2-3, page 5, line 18 to page 6, line 28 and Examples 4 and 6), wherein the enzymes expressed by the organisms can convert diols into hydroxyalkanoate monomers selected from the group consisting of 4-hydroxybutyrate, 2-hydroxybutyrate, 4-hydroxyvalerate, 5-hydroxyvalerate, 6-hydroxyhexanoate, 2-hydroxyethanoate, 2-hydroxypropionate, and 3-hydroxyhexanoate (see at least page 2, line 22 to page 3, line 6 and claims 11 and 21 as originally filed), wherein the hydroxyalkanoate are polymerized by the activity of a PHA synthase enzyme to form polyhydroxyalkanoates having a weight-average molecular weight (Mw) of at least 300,000 Da (see at least claims 1 and 11 as originally filed, page 4, lines 14-16 and the Examples).

Dependent claims 2, 3, 4, 6 and 7 define the diol as 1,6-hexanediol, 1,5-pentanediol, 1,4-butanediol, 1,2-ethanediol and 1,2-propanediol, respectively and the hydroxyalkanoate monomer as 6-hydroxyhexanoate, 5-hydroxyvalerate, 4-hydroxybutyrate, 2-hydroxyethanoate and 2-hydroxypropionate (see at least page 2, line 25 to page 3, line 3). Dependent claim 8 defines the method of claim 1 wherein the organism expresses polynucleotides which encode aldehyde dehydrogenase and diol oxidoreductase (see at least page 4, lines 2-3). Dependent claim 9 defines the method of claim 8 wherein the organism is selected from the group consisting of *Escherichia coli*, *Ralstonia eutropha*, *Klebsiella* spp., *Alcaligenes latus*, *Azotobacter* spp., and *Comamonas* spp. (see at least claim 9 as originally filed, page 1, lines 16-21, page 3, lines 18-22, page 5, lines 6-7 and page 6, lines 13-17).

### REMARKS

The Appeal Brief filed on August 22, 2007 was objected to for not identifying and mapping the subject matter of all independent claims on appeal under the section entitled "Summary of Claimed Subject matter". The Examiner indicated in the Notice of Non-Compliant Amendment that the entire Appeal Brief is not required, only the section found defective. In response, Appellants submit a "Summary of the Claimed Subject Matter" of the Appeal Brief, identifying and mapping all independent claims on appeal (claims 1 and 10) to the specification by page and line number in compliance with 37 CFR 41.37(c)(1)(v).

Respectfully submitted,

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